

Suppose you deposit \$150 in a new savings account paying an annual yield of 4%. If the account is left alone, how much money will be in the account at the end of 5 years?

A bank advertises an annual yield of 3.81% on a 6-year CD (certificate of deposit). If the CD's original amount was \$2,000, how much will it be worth after 6 years?

How much interest will be earned in 7 years on a principal of \$500 at an annual yield of 5.6%?

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$$y = a(1 + r)^x$$

\downarrow start \downarrow rate dec.

$$\textcircled{a} \quad y = 150(1 + 0.04)^5 = 182.50$$

$$\textcircled{b} \quad 2,000(1 + 0.0381)^6 = 2,503.02$$

$$\textcircled{c} \quad 500(1 + 0.056)^7 = 732.17$$

LESSON 7.2 • Exponential Equations

1. a. $(2.5)^5$

b. 8^{396}

c. $(1 + 0.07)^3$

d. 6^{2728^2}

2. a. $\approx \$710.56$

b. $\approx \$725.62$

3. a. $\approx 26,222$

b. $\approx 27,177$

4. a. ii

b. iii

c. i

5. a. iv

b. iii

c. i

d. ii

6. y represents the employee's salary, 25,000 represents the employee's starting salary, x represents the number of years after the employee was hired, 1 represents 100% of the previous year's salary, and 0.04 represents an annual 4% raise.

7. a. $y = 5(2)^x$

b. $y = 300(0.4)^x$

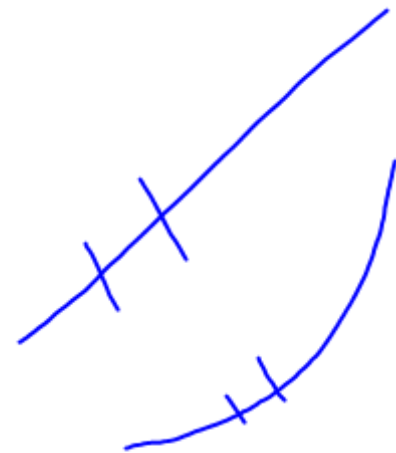
c. $y = 100(1.1)^x$

$$2(-2)^2 + 3(-2) + 1$$
$$8 - 6 + 1 = \boxed{3}$$

$$(a) 500(1 + 0.015)^6$$

$$(b) \approx 546.2$$

$$(c) \approx 597.8$$



Turn in 7.3 # 8, 10, 12

Hw

Finish Review sheet 7.2 + 7.2
(see the next slides)

Lesson 7.2 • Exponential Equations

Name _____ Period _____ Date _____

1. Rewrite each expression with exponents.

a. $(2.5)(2.5)(2.5)(2.5)(2.5)$

b. $(8)(8)(8)(9)(9)(9)(9)(9)(9)$

c. $(1 + 0.07)(1 + 0.07)(1 + 0.07)$

d. $6 \cdot 6 \cdot 7 \cdot 7 \cdot 8 \cdot 8$

2. An investment of \$700 increases by 0.3% each month.

a. What is the value of the investment after 5 months?

b. What is the value after 1 year?

3. A population of 25,000 increases by 1.2% each year.

a. What is the population after 4 years?

b. What is the population after 84 months?

4. Match each equation with a table of values.

a. $y = 3(0.09)^x$

i.

x	y
1	3.5
2	2.45
3	1.715

b. $y = 4(1.03)^x$

ii.

x	y
1	0.27
2	0.0243
3	0.0022

c. $y = 5(0.7)^x$

iii.

x	y
1	4.12
2	4.2436
3	4.3709

5. Match each recursive routine with the equation that gives the same value.

a. $1.25 \text{ [ENTER]}, \text{Ans} \cdot 0.75 \text{ [ENTER]}$

b. $0.75 \text{ [ENTER]}, \text{Ans} \cdot (1 + 0.25) \text{ [ENTER]}$

c. $1.25 \text{ [ENTER]}, \text{Ans} + \text{Ans} \cdot 0.25 \text{ [ENTER]}$

d. $0.75 \text{ [ENTER]}, \text{Ans} \cdot (1 - 0.25) \text{ [ENTER]}$

i. $y = 1.25(1.25)^x$

ii. $y = 0.75(0.75)^x$

iii. $y = 0.75(1.25)^x$

iv. $y = 1.25(1 - 0.25)^x$

6. The equation $y = 25,000(1 + 0.04)^x$ models the salary of an employee who receives an annual raise. Give the meaning of each number and variable in this equation.

7. For each table, find the value of the constants A and r such that $y = A \cdot r^x$.

a.

x	y
0	5
2	20
4	80
5	160

b.

x	y
0	300
2	48
3	19.2
4	7.68

c.

x	y
0	100
1	110
2	121
3	133.1

Lesson 7.3 • Multiplication and Exponents

Name _____ Period _____

1. Rewrite each expression with a single exponent.

a. $4^3 \cdot 4^4$

b. $(-3)^5 \cdot (-3)^2$

c. $(-2)^8(-2)^7$

d. $(8^6)(8^3)$

e. $x^9 \cdot x^4$

f. $n^{10} \cdot n^{12}$

g. $(-5)^3(-5)^7$

h. $a^p \cdot a^q$

i. $7^3 \cdot 7^5$

2. Rewrite each expression with a single exponent.

a. $(4^5)^5$

b. $(8^2)^7$

c. $(x^9)^4$

d. $(y^3)^{10}$

e. $(5^3)^7$

f. $[(-3)^3]^2$

g. $(z^8)^2$

h. $(10^9)^3$

i. $(0.5^2)^5$

j. $(100^3)^8$

k. $[(-6)^5]^4$

l. $(t^7)^2$

3. Use the properties of exponents to rewrite each expression.

a. $4x \cdot 3x$

b. $(6m)(2m^2)$

c. $(-5n^2)(4n^4)$

d. $xy^2 \cdot x^2y^4$

e. $8s^5w^6 \cdot 5s^2w^3$

f. $-9m^4n^7 \cdot -m^6n$

g. $(2x^4)^6$

h. $(-4m^5)^2$

i. $(n^6p^2)^5$

j. $(-3m^4n^7)^3$

k. $(5x^2yz^5)^4$

l. $(3xy^4z^6)^5$

m. $(3x^2y^3)(-2x^3y^4)$

n. $2x^2y^3z \cdot 4x^3y^4z^3$

o. $(-3x^4y^3)^3$

4. Evaluate each expression for the given value of the variables.

a. $2x^3$ for $x = -5$

b. $-3y^4$ for $y = -3$

c. $3x^2y^3$ for $x = 3$ and $y = -2$

d. $-5x^3yz^2$ for $x = -2$, $y = 5$, and $z = -3$

5. Use the properties of exponents to rewrite each expression.

a. $(xy^2)^3(x^2y^3)^4$

b. $(2m^3n^2)^4(-mn^5)^2$

c. $(-2s^4w)^3(-4sw^6)^2$

d. $(4a^4b^2)^3(0.5a^7b^3)^2$